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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,886	02/27/2002	Szeming Cheng	9432-000169	7496

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EXAMINER

VO, HUYEN X

ART UNIT	PAPER NUMBER
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2655

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/083,886

**Applicant(s)**

CHENG ET AL.

**Examiner**

Huyen X. Vo

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-10, 16-18, 24-26 and 32-34 is/are allowed.
- 6) ☒ Claim(s) 1-7, 11-15, 19-23, 27-31, and 35-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's arguments with respect to claims 1-7, 11-15, 19-23, and 27-31 have been considered but are moot in view of the new ground(s) of rejection necessitated by claim amendment.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 1-7, 11-15, 19-23, 27-31, and 35-36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification of the present application indicates that "*the present invention employs a heuristic method to achieve improved accuracy without the use of perceptual model 20*" (paragraph [0041]), but fails to specifically and clearly define said "heuristic method". The specification also fails to specifically describe in detail how the "heuristic method" is used to improve accuracy. Previous ground of rejection is maintained.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless – (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 5-6, 19, 23, and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Araki (US 6725192).

6. Regarding claims 1, 19, and 35, Araki discloses a method, apparatus, and computer-readable medium having instructions recorded thereon for concealing errors in an audio signal, comprising: digitally encoding the audio signal into a plurality of audio data packets representative of the audio signal (*figure 7 and/or col. 5, lines 5-67*); determining a perceptually tolerable distortion limit for said audio packets (*col. 5, lines 7-22*); and altering a value of at least one said audio packet by an amount within said perceptually tolerable distortion limit utilizing information representative of a different said audio data packet (*figures 7-8 and/or col. 5, line 33 to col. 7, line 47*).

7. Regarding claims 5-6 and 23, Araki further discloses that the encoded audio data packets comprise modulated discrete cosine transform (MDCT) coefficients (*col. 5, lines 23-32*), and the altering a value of at least one said audio packet comprises modifying

quantized indices of said encoded audio data packets (*figures 7-8 and/or col. 5, line 33 to col. 7, line 47*).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araki (US 6725192) in view of Shepard (US 5943347).

10. Regarding claims 2 and 20, Araki further discloses that a plurality of said audio packets are altered by an amount within said perceptually tolerable distortion (*figures 7-8 and/or col. 5, line 33 to col. 7, line 47*), but fails to specifically disclose that each alteration utilizing information representative of a different said audio packet than the audio packet being altered. However, Shepard teaches that each alteration utilizing information representative of a different said audio packet than the audio packet being altered (*col. 4, lines 13-52 or figure 3*).

Since Araki and Shepard are analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of

invention to modify Araki by incorporating the teaching of Shepard in order to minimize the level of degradation of audio signal.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Araki (US 6725192) further in view of Tian et al. (US 6714683).

12. Regarding claim 7, Araki fails to specifically disclose that the alteration comprises modulo watermarking. However, Tian et al. teach that the alteration comprises modulo watermarking (*col. 1, lines 51-67*).

Since the modified Araki and Tian et al. are analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Araki by incorporating the teaching of Tian et al. in order to protect the audio signal from being pirated.

13. Claims 3 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araki (US 6725192) in view of Shepard (US 5943347), and further in view of Tian et al. (US 6714683).

14. Regarding claims 3 and 21, the modified Araki fails to specifically disclose that the alteration comprises fragile watermarking. However, Tian et al. teach that the alteration comprises fragile watermarking (*col. 6, lines 36-55*).

Since the modified Araki and Tien et al. are analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Araki by incorporating the teaching of Tien et al. in order to protect the audio signal from being pirated.

15. Claims 4 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araki (US 6725192) in view of Shepard (US 5943347), further in view of Tian et al. (US 6714683), and further in view of Paik et al. (US 5233629).

16. Regarding claims 4 and 22, the modified Araki fails to specifically disclose that the alteration comprises least bit modulation (LBM). However, Paik et al. further teach that the alteration comprises least bit modulation (*col. 4, lines 22-47*).

Since the modified Araki and Paik et al. are analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Araki by incorporating the teaching of Paik et al. in order to provide high bandwidth efficiency.

17. Claims 11-12, 15, 27-28, 31, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shepard (US 5943347) in view of Araki (US 6725192).

18. Regarding claims 11, 27, and 36, Shepard discloses a method, apparatus, and computer-readable medium having instructions recorded thereon for concealing errors

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in an audio signal, comprising: decoding a digitally encoded audio signal (*col. 3, line 15, since audio signal is encoded before transmission, said audio signal must be decoded at the receiver before further processing*); determining that at least one said audio data packet is missing or unavailable from the digitally encoded audio signal (*col. 4, lines 13-52 or figure 3*); extracting information representative of said missing or unavailable audio data packet from an alteration of at least one different, available audio data packet (*col. 4, lines 13-52 or figure 3*); and utilizing said extracted information to estimate said missing or unavailable audio data packet (*col. 4, lines 13-52 or figure 3*).

Shepard fails to specifically disclose that the digitally encoded audio signal includes a plurality of audio data packets representative of the audio signal, and said plurality of audio data packets includes a plurality of altered audio data packets; wherein each said altered audio data packet comprises an alteration indicative of information representative of a different said audio data packet, and each said alteration is limited to a predetermined perceptually tolerable distortion limit. However, Araki teaches that the digitally encoded audio signal includes a plurality of audio data packets representative of the audio signal, and said plurality of audio data packets includes a plurality of altered audio data packets (*see claim 1 rejection*); wherein each said altered audio data packet comprises an alteration indicative of information representative of a different said audio data packet, and each said alteration is limited to a predetermined perceptually tolerable distortion limit (*see claim 1 rejection*).

Since Shepard and Araki are analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of



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invention to modify Shepard by incorporating the teaching of Araki in order to specify to the receiver side how to recover the signal.

19. Regarding claims 12 and 28, Shepard further discloses that more than one audio data packet is missing or unavailable, and said extracting and utilizing steps are iterated for each missing data packet (*col. 4, lines 13-52 or figure 3*).

20. Regarding claims 15 and 31, Shepard fails to specifically disclose that the altered audio data packets comprise altered modulated discrete cosine transform (MDCT) coefficients. However, Araki further teaches that the altered audio data packets comprise altered modulated discrete cosine transform (MDCT) coefficients (*col. 5, lines 23-32*).

Since Shepard and Araki are analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Shepard by incorporating the teaching of Araki in order to improve efficiency of coded signal.

21. Claims 13 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shepard (US 5943347), in view of Araki (US 6725192), and further in view of Tian et al. (US 6714683).

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22. Regarding claims 13 and 29, the modified Shepard fails to specifically disclose that the extracted information comprises fragile watermarking. However, Tian et al. teach that the extracted information comprises fragile watermarking (*col. 6, lines 36-55*).

Since the modified Shepard and Tien et al. are analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Shepard by incorporating the teaching of Tien et al. in order to protect the audio signal from being pirated.

23. Claims 14 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shepard (US 5943347), in view of Araki (US 6725192), further in view of Tian et al. (US 6714683), and further in view of Paik et al. (US 5233629).

24. Regarding claims 14 and 30, the modified Shepard fails to specifically disclose that the alteration comprises least bit modulation (LBM). However, Paik et al. further teach that the alteration comprises least bit modulation (*col. 4, lines 22-47*).

Since the modified Shepard and Paik et al. are analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Shepard by incorporating the teaching of Paik et al. in order to provide high bandwidth efficiency.

***Allowable Subject Matter***

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25. Claims 8-10, 16-18, 24-26, and 32-34 are allowed over prior art of record. The following is a statement of reasons for the indication of allowable subject matter: Araki teaches an audio coding and quantization method that iteratively adjusting both subband and global scale factors to achieve minimum signal distortion. Shepard teaches an error concealing method in that received audio signal is detected and determined if error is involved. If so, different techniques of error concealment are carried out on the error frame. Both Araki and Shepard fail to specifically disclose the claimed limitations in claims 8-10, 16-18, 24-26, and 32-34. Furthermore, it would have not been obvious to one of ordinary skill in the art at the time of invention to modify Araki and/or Shepard to obtain the claimed subject matters in claims 8-10, 16-18, 24-26, and 32-34.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen X. Vo whose telephone number is 571-272-7631. The examiner can normally be reached on M-F, 9-5:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HXV

7/27/2005

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SUSAN MCFADDEN  
PRIMARY EXAMINER